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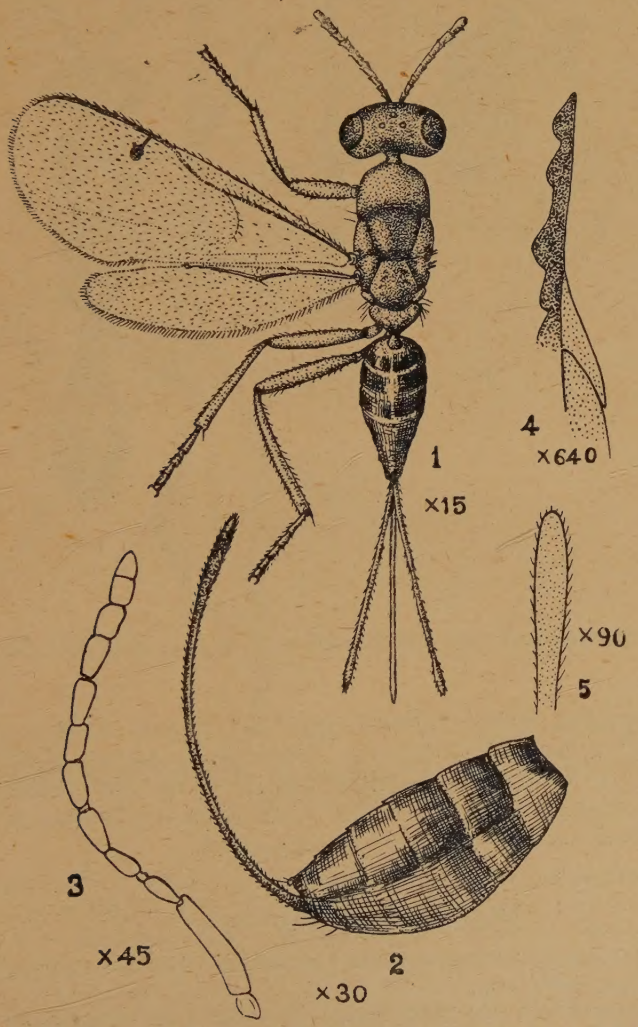
ON A NEW SPECIES OF PHYTOPHAGOUS CHALCIDOIDEA, *MEGASTIGMUS ALBIZZIAE* SP. N., FEEDING ON *ALBIZZIA ODORATISSIMA* PODS IN THE ENVIRONS OF DELHI.

By S. Mukerji, D.Sc.

(Systematic Entomologist, Division of Entomology, Indian Agricultural Research Institute, New Delhi.)

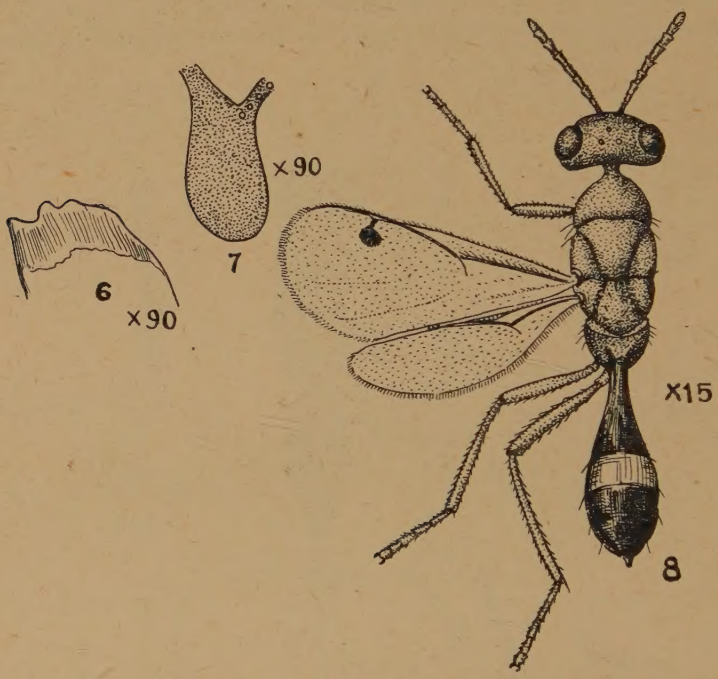
While attempting to breed out Bruchids from some affected pods of *Albizzia odoratissima* (?),[1] I came across males and females of a species of phytophagous



Figs. 1-5.—*Megastigmus albizziae* sp. n. (1) Adult female; (2) abdomen with ovipositor; (3) antennae; (4) tip of the ovipositor stylet; (5) sheath.

[1] The specific identification is provisional as no inflorescence was available.

Chalcidoidea which is new to science. The species is specially interesting in that both the other two Indian species of the genus *Megastigmus* have been recorded as parasitic on other Chalcids. Thus, *Megastigmus indi* Gir. has been recorded by Ramakrishna Ayyar (1920) from Coimbatore (S. India) in pods of Agathi and "Dhaincha" as parasitic on *Eurytoma indi*, while the second *Megastigmus* species was also recorded by the same author (1925) as parasitic on Sesbania seed-borer, *Bruchophagus mellipes* Gir. Unfortunately, the original descriptions of the two Indian species could not be traced in the literature.



Figs. 6–8.—*Megastigmus albizziae*. (6) Mandible; (7) stigmal knob; (8) adult male.

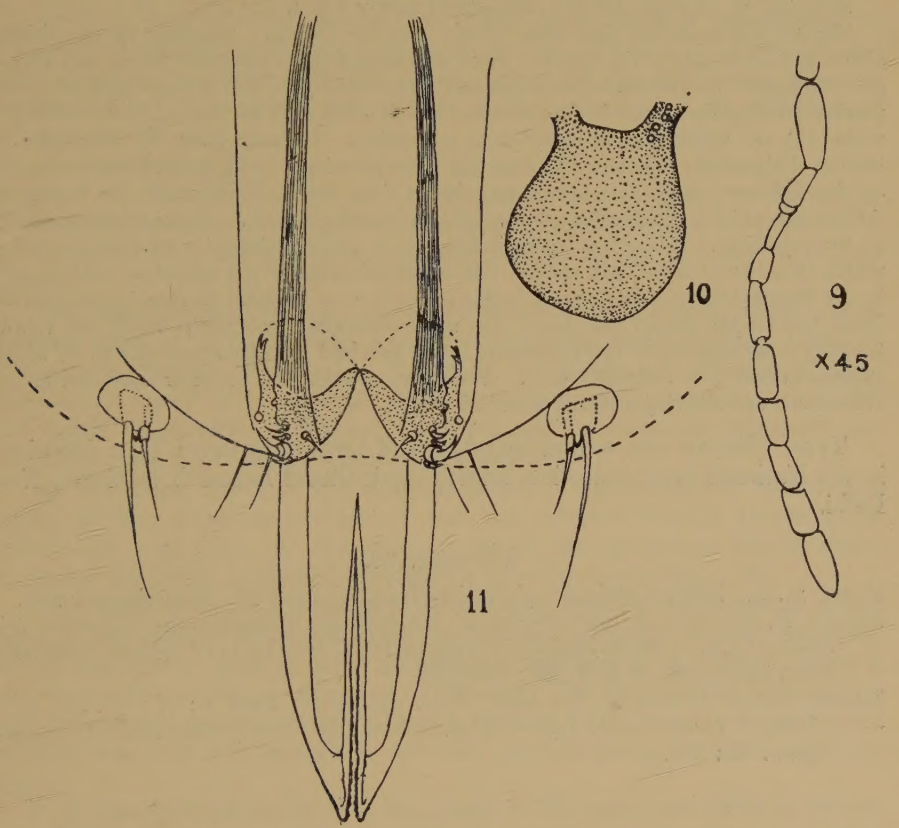
In the Australian region, however, from the vicinity of Sydney, Noble (1939) recorded a parasitic form, viz. *Megastigmus acaciae* Noble, which appears to be the nearest well-described relative of the form which I came across in the environs of Delhi. Detailed descriptions of the male and female forms of the species are given in the following pages.

Megastigmus albizziae sp. n.

Female (fig. 1): Length 3·9 mm. (without ovipositor); width of the thorax 0·9 mm., length of the ovipositor 2·6 mm.

Head mottled brownish; the rugae on the epicranium distinct, angularly directed, meeting in the middle in the region of the central ocellus as also the lateral ocelli in the form of an arc; in the interocellar area the rugae are less distinct; the coloration of the eyes ranges from pink to deep scarlet; as distinct from *M. cassiae* Noble, the species

does not bear the pair of small, irregular oval dark spots below and more or less in line with the lateral ocelli ; antennae dark brown. The head, specially the frons, is furnished with very fine light brown hairs. Prothorax pale cream-brown ; the scutum and the scutellum somewhat deeper in colour ; surface of thorax rugose ; rugae somewhat broader, transverse and parallel in the pronotum and similarly disposed in the scutum but finer than those in the pronotum ; on the parapsides the rugae somewhat angularly directed and the lines bend anteriorly forming a whorl distad ; the rugae in the scutellum are somewhat finely reticulated ; pronotum sparsely covered with black hairs while scutum



FIGS. 9–11.—*Megastigmus albizziae.* (9) Antenna; (10) stigmal knob; (11) male genitalia (highly magnified).

and scutellum bear similar hairs sparsely distributed along the parapsidal lines and lateral borders of the scutellum ; ventrally the thorax appears paler ; legs are pale creamy-yellow, the tarsal claws being dark. The stigmal-knob of the wing as in fig. 7. As compared to *M. acaciae*, the female form of the species does not bear the pair of small irregular oval dark spots below, and more or less in line with the lateral ocelli. No black area at the base of the propodium was traceable in female *M. albizziae.* Abdomen ground coloration dorsally yellowish with two dorsally incomplete dark brown anterior bands and one similar complete band posterior to them. The colour of the abdomen paler ventrad ; the dorsal surface of the abdomen is smooth with fine black hairs arranged in a single row which appears to begin from the third and extends to the succeeding segments, the

hairs of the lateral region being longer. The ovipositor as compared to *M. acaciae* is comparatively longer and curved upward much beyond the level of the abdomen.

The new species differs from *M. acaciae* Noble and can be readily separated from it in that it does not bear in the female the pair of small irregular oval dark spots below and more or less in line with the lateral ocelli, by the stigmal knob of the wing and also by the unusual length of the ovipositor. As in *M. acaciae*, no coloured patch on the pronotum is visible.

Male (fig. 8). Length 4·9 mm., breadth at thorax 1 mm.

Slightly larger, darker and more robust than the female. Rugosity on the thorax almost similar to that of the female. Head and thorax up to scutellum pale cream with a greenish tinge. On the head epicranium and genae darker ; a pair of pigmented brownish patches forming the ends of an arc over the lateral ocelli with the central ocellus enclosed within the arc, which may be complete or incomplete. Dorsally, from the propodium to the distal tip of the abdomen, dark except for a prominent unpigmented band mesially on the abdomen. Legs pale brown concolorous with one another, except the femora of the fore leg, which is slightly darker ectad and on the anterior half. Thorax dark ventrally up to propodium. Propodium dorsomesially bears a dark triangular marking enclosing within the arms a pair of dark spots. The dorsal coloration of the abdomen with regard to the distribution of unpigmented bands seems to be a variable feature in the species. Thus, besides the mesial pale band, two more somewhat incomplete bands are visible laterally ; one anterior to the prominent mesial one and the other posterior to it, which extends dorsad to a variable degree. Ventrally, anterior and posterior one-third of the abdomen is dark leaving a lighter area in between.

Type, allotype and several paratypes of both sexes have been deposited in the National Pusa collection, Indian Agricultural Research Institute, New Delhi.

References.

Mani, M. S., 1938, *Catalogue of Indian Insects. Part* 23. *Chalcidoidea* : 43.

Noble, N. S., 1939, A new species of *Megastigmus* parasitic on *Tepperella trilineata* Cam., a wasp causing galling of the flower buds of *Acacia decurrens*. *Proc. Linn. Soc. N.S.W.* **64** : 266–278.

Ramakrishna Ayyar, T. V., 1920, *Proc. ent. Mtgs. Pusa* **1** : 37 ; **3** : 935.

——, 1925, A check list of Indo-Ceylonese Chalcid Flies (Chalcidoidea). *Spolia zeylan.* **13** : 243.

NOTE ON THE GENUS *BIBULUS* I. BOLIVAR, 1914 (ORTHOPTERA : ACRIDIDAE).

By G. Popov, F.R.E.S.

In his description of the genus *Bibulus*, based on *Tylotropidius brunni* Giglio-Tos 1907, I. Bolivar (1914) states that "this insect bears a resemblance to *Thisoicetrus*, but the prosternal tubercle is similar to that of *Tylotropidius*, and thence Giglio-Tos placed it in that genus. However, the hind tarsus does not correspond to the proper shape of that in the latter genus, its second joint being much shorter."

An examination of a large series (57 ♂♂, 110 ♀♀) of *Bibulus* from the collections of the British Museum, and their comparison with various species of *Thisoicetrus* has shown a very close similarity between these two genera, while it was found that the prosternal tubercle of both varies in shape to a large extent.

The resemblance of the tubercle of *Bibulus* to that of *Tylotropidius* is in its extreme form of variation only, and when seen from the front (figs. 1 and 2). When seen directly from below, however, the prosternal tubercle of *Tylotropidius* is found to be laminate, with its maximum thickness less than half the width, whilst that of *Bibulus* is rounded and its maximum thickness considerably more than half its width (figs. 5 and 12).

On the other hand, in the extreme forms of variation, the frontal and apical grooves disappear completely and the tubercle becomes almost cylindrical (figs. 1, 2, 3, 4). At this extreme (fig. 4), the tubercle of *Bibulus* shows a marked similarity to that of *Thisoicetrus littoralis notata* (figs. 7, 8).

The examination of the tubercle of the other species of *Thisoicetrus* shows again a variation of the shape (figs. 6 to 10) and although, broadly speaking, in the majority of cases it could be called cylindrical, in its extreme forms it may be conical, or else spatulate as in *Bibulus*. The last extreme form is very well represented in *Thisoicetrus sikorai* I. Bolivar 1914, where in one case the tubercle was not only spatulate, but also grooved along its front and apex (fig. 6).

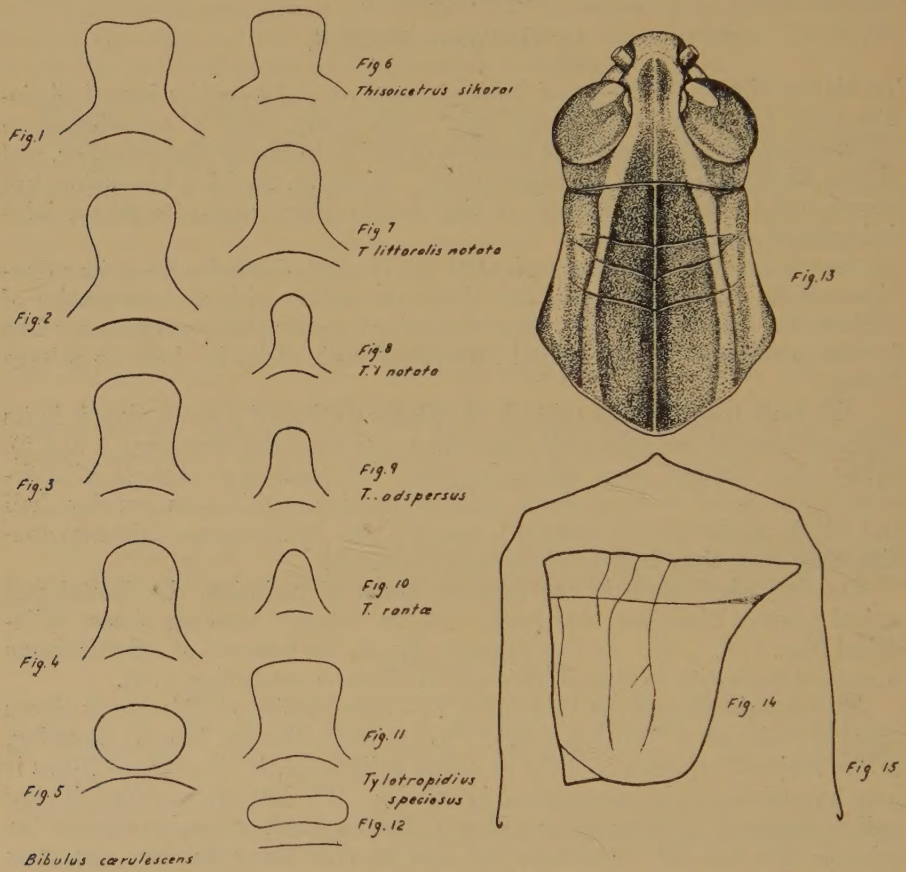
It is therefore concluded that the shape of the prosternal tubercle cannot be considered a generic character of *Bibulus*, and in any case does not distinguish it from *Thisoicetrus*, to which it is similar in all other generic aspects. It should be added that although the shape of the pronotum, which is distinctly roof-shaped in *Bibulus* (fig. 15), distinguishes it from most species of *Thisoicetrus*, here again the difference is only relative, e.g. *T. sikorai* and *T. pulcher* Bolivar 1902 have only a slightly less roof-shaped pronotum than *Bibulus*.

Therefore the following generic synonymy should be established.

Bibulus Bolivar 1914 = *Thisoicetrus* Brunner 1861 **(syn. nov.)**.

There are only two described species of *Bibulus : caerulescens* Stål 1876, with *brunni* as its synonym, as established by Uvarov (1939), and *desertus* Uvarov 1922. The latter species was described from two males and two females, and was stated to differ from *brunni* in coloration, shorter and narrower elytra, and shorter hind femora.

Since that date, extensive collections of *Bibulus* from various localities have accumulated in the British Museum, and recent examination has revealed a great variability of this insect in its coloration, size and many other characters, including the shape of the prosternal tubercle, discussed above.



FIGS. 1–15.—(1–4) *Thisoicetrus* (*Bibulus*) *caerulescens*, prosternal tubercle, front view, showing individual variation. (5) Ditto, view directly from below. (6–10) Front view of prosternal tubercles in various species of *Thisoicetrus*. (11) *Tylotropidius speciosus*, prosternal tubercle, front view. (12) Ditto, view directly from below. (13) *Thisoicetrus* (*Bibulus*) *caerulescens*, head and pronotum. (14) Ditto, side-view of pronotum. (15) Ditto, cross-section of pronotum at the middle sulcus.

Intermediate forms between *desertus* and *caerulescens*, frequently from the same locality, make it impossible to regard the former even as a subspecies. Therefore the full synonymy of the species is as follows :

Thisoicetrus caerulescens (Stål 1876).

1876, *Euprepocnemis caerulescens* Stål, *Bih. Sven. Akad. Handl.* **4** (5) : 16.
1901, *Euprepocnemis caerulescens* Brunn, *Mitt. Naturhist. Mus. Hamburg* **18** : 84, 132.
1907, *Tylotropidius brunni* Giglio-Tos, *Boll. Mus. Torino* **22** : 31.

1914, *Bibulus brunni* I. Bolivar, *Trab. Mus. Hist. Nat. Madrid* **20** : 31.
1922, *Bibulus desertus* Uvarov, *Trans. ent. Soc. Lond.* **1922** : 131–132 (**syn. nov.**).
1939, *Bibulus caerulescens* Uvarov, *Nov. Zool.* **41** : 382.

The known distribution of *Thisoicetrus caerulescens* comprises South-Western Arabia including Socotra, East Africa and Nigeria. This species has recently been recorded in the Sudan, but not in Kenya, although it almost certainly occurs in that country.

Book Notice.

Le Mimétisme. By Lucien Chopard. 8vo. Paris (Payot), 1949. Pp. 335, 100 figs. Price 930 francs.

The work is divided into two parts, the first relating the facts and the second the theories and interpretations.

Part I deals with the physical basis of colour, and with homochromy in its simple form as a colour resembling the background, and in its complications of disruptive patterns and variable coloration. Examples are given from various Classes and Orders of animals. Disguises and warning colours are followed by accounts of mimetic associations and chains, geographical variation and the effects of relative abundance of mimic and model. Butterflies are chiefly used to illustrate these topics but examples are also drawn from many other groups.

Part II details the results of experiments on the utility of the different methods of protection, on the value of mimetic resemblances, and on factors affecting the selective pressure. Research on melanic and polymorphic forms is mentioned, and conclusions are briefly summarized.

There is a bibliography. The reader has the tedious job of cutting all the pages.

A PRACTICAL TABLE FOR THE DETERMINATION OF SEXES OF NYMPHS OF *LOCUSTA MIGRATORIA MIGRATORIOIDES* (R. & F.) (ORTHOPTERA: ACRIDIDAE).

By V. M. Dirsh, D.Sc., F.R.E.S.

(*Anti-Locust Research Centre.*)

Precise determination of the sex of nymphal (hopper) instars of the African Migratory Locust is of importance in the field and in laboratory work, but the

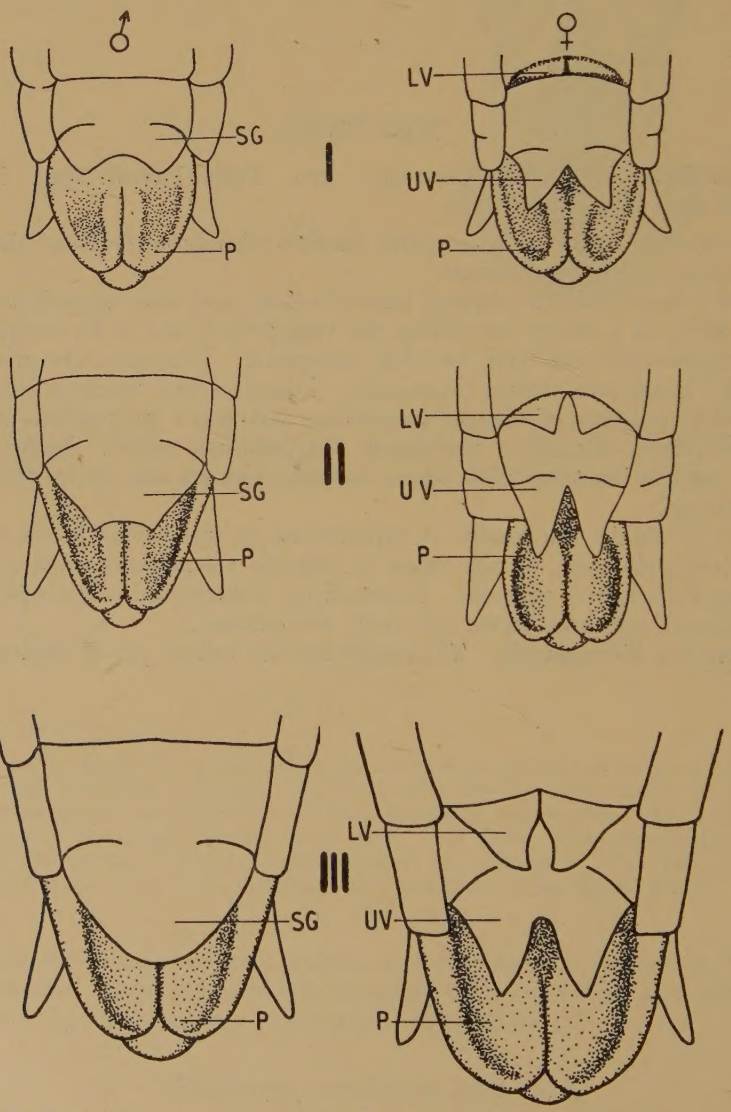


Fig. 1.—Rudiments of external genitalia of I, II and III instars, viewed from below. P, paraprocts; SG, subgenital plate; UV, upper valves of ovipositor; LV, lower valves of ovipositor.

existing descriptions are often inexact and insufficient for practical purposes. In the following table the shape and relative size of the subgenital plate of the male and ovipositor valves of the female are used as the most convenient and easily observed characters.

It is necessary to remember that sometimes there are additional moults which may obscure the morphological picture of the normal five-instar development.

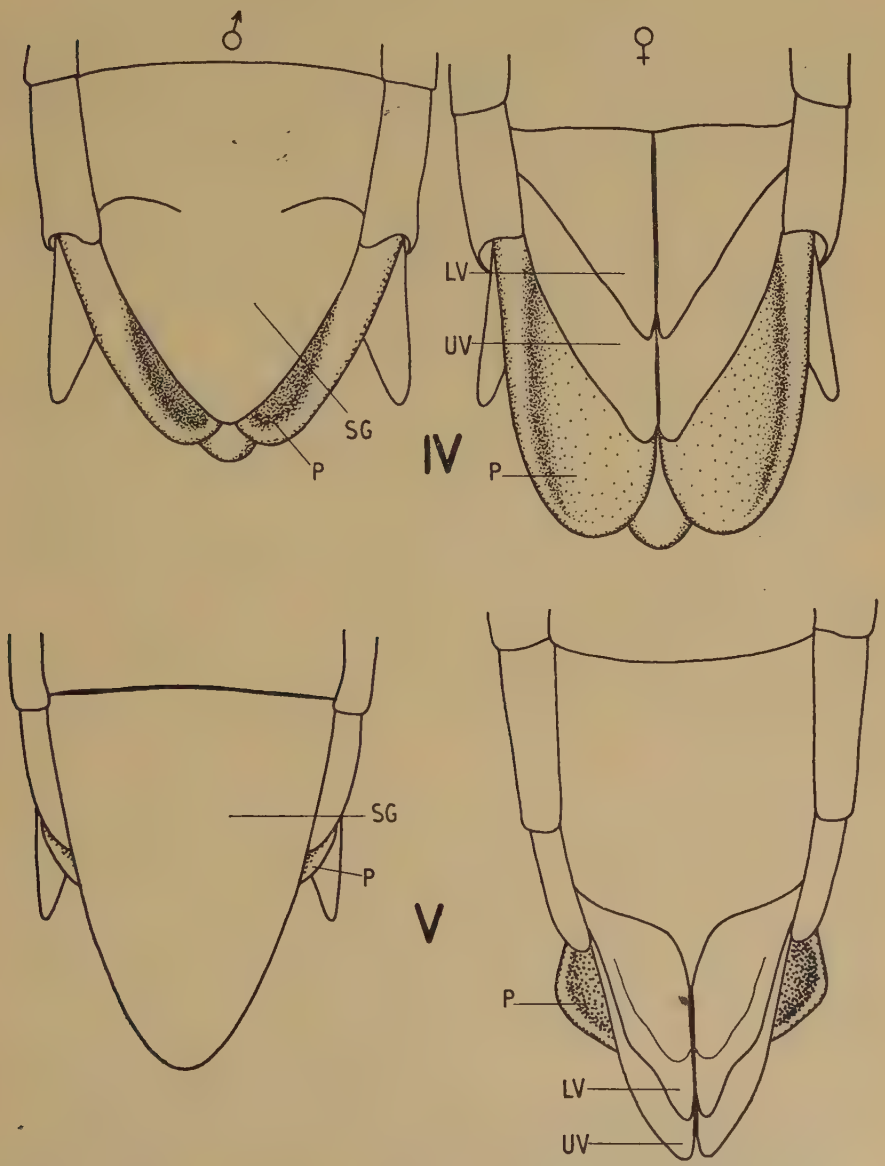


Fig. 2.—Rudiments of external genitalia of IV and V instars, viewed from below.

Table for the Determination of Sexes.

I. instar. ♂. Apex of the rudiment of subgenital plate semicircularly excised with short obtuse lobes, which cover only the basal part of the paraprocts.

♀. Rudiments of the upper valves of ovipositor are comparatively long, triangular, subacute, separated by a deep rectangular excision. At the base of the segment bearing the upper valves, there is an indistinct transverse fold, which is a rudiment of the lower ovipositor valves. (This fold is indistinct at the beginning of the instar and more distinct towards its end.)

II instar. ♂. Rudiment of subgenital plate more narrowed to the apex than in the first instar; its apex more shallowly excised, with short angular lobes, reaching the middle of the paraprocts.

♀. Rudiments of the upper valves of ovipositor are long and more acute than in the first instar, separated by a deep, acutangulate excision. Rudiments of the lower valves obtuse-triangular, short, separated by acutangulate excision.

III instar. ♂. Rudiment of subgenital plate with broadly parabolic apex, projecting beyond the middle of paraprocts.

♀. Rudiments of the upper valves of ovipositor broader than in the second instar, separated by a relatively broader excision. Rudiments of the lower valves with apical lobes only slightly shorter than the upper ones.

IV instar. ♂. Rudiment of the subgenital plate with narrowly parabolic apex, reaching almost to the apex of paraprocts.

♀. Left and right rudiments of both the upper and lower valves of the ovipositor completely separated along the median line, but touching each other, with only a shallow triangular excision at the apex. Upper valves much shorter than paraprocts and much longer than lower valves.

V instar. ♂. Rudiment of subgenital plate approaches the final shape and is much longer than paraprocts.

♀. Rudiments of the ovipositor valves approach the final shape; both upper and lower valves are much longer than paraprocts; upper valves are a little longer than the lower.

THE MALE OF A NEW SPECIES OF THE SUBGENUS *AËDES* MEIGEN, 1818 (DIPTERA: CULICIDAE).

By M. A. U. Menon.

(*Public Health Laboratory, Trivandrum.*)

A single male specimen of the species described here was obtained by the writer from a bush in Pathanamthitta, Travancore, during a collecting tour in August, 1945. It was slightly damaged, especially on the legs, and the scutellar and mesonotal scales had been partly rubbed off. Otherwise it was in good condition and was suitable for study. As further search in the locality did not yield any more specimens, the description given below is necessarily based on the aforesaid specimen. The hypopygial characters of this mosquito, as will be seen later, are so distinctive that it is considered proper to recognize it as a new species for which the name *Aëdes* (*Aëdes*) *seculatus* is proposed.

Aëdes (Aëdes) seculatus sp. n. (♂).

Superficially resembles *Aedes* (*A.*) *pseudomediofasciatus* (Theobald), with dark brown integument and patches of pale scales on pleurae and abdomen. Length of wing 2·9 mm.

Head: Vertex clothed mainly with dark flat scales, except for a tuft of erect ones at nape. Margin off eyes lined with a narrow border of pale flat scales, which broadens into a patch on the occipital region. Proboscis long and slender. Palpi about one-eighth length of proboscis. Antennae with the two elongate terminal segments together forming five-eighths of its total length.

Thorax: Pleurae with patches of pale scales especially on upper half of sternopleuron and mesepimeron. Anterior pronotum free from scales, but with several outstanding bristles. Posterior pronotum with 5 bristles along its posterior border. Post-spiracular bristles 3. Sternopleuron with 4 bristles along its upper margin and two lower down, along the posterior margin. Mesepimeron with 7 upper and 2 lower bristles, the latter about the middle of the sclerite (fig. 1*c*). Mesonotum covered with narrow sickle-shaped, brown scales, interspersed with bristles.

Abdomen: Dorsum completely clothed with dark brown scales. Lateral pale patches on tergites II to VII.

Hypopygium: Coxite (fig. 1*a* and *f*) with apex produced inwards into a snout-like projection carrying two spines, short, stout and rather blunt. Anterior to the apical projection of the coxite and along its inner margin is a row of 3 sharp and strong spines, which can be seen clearly only when the appendage is viewed from the ventral side (fig. 1*f*). At about the middle of its hairy inner surface, the coxite has a stumpy process bearing a pair of well-developed spines starting from a common base. Anterior still to this process are three pairs of somewhat smaller spines. *Style* (fig. 1*a* and *e*) large, and strikingly sickle-like, the blade of the sickle directed posteriorly, its point of articulation being at about a third of the length of coxite measured from its apex. Paraprocts (fig. 1*b*) simple, cornuculate with their ends directed inwards.

Phallosome: The phallosomal chitinizations are shown in fig. 1*d*. On the ventral side of the phallosomal plates is a thin quadrilateral plate, the posterior margin of which is free and the anterior corners are apparently connected with the base of the phallosomal plates by means of chitinous filaments. *Parameral plates* racket shaped, with their "handles" pointing posteriorly.

The hypopygial characters of *Aëdes* (*A.*) *seculatus* are so distinctive that there can be no possibility of its being confused with any other species. Among Indian species of *Aëdes*, its nearest allies appear to be the 5 species of the

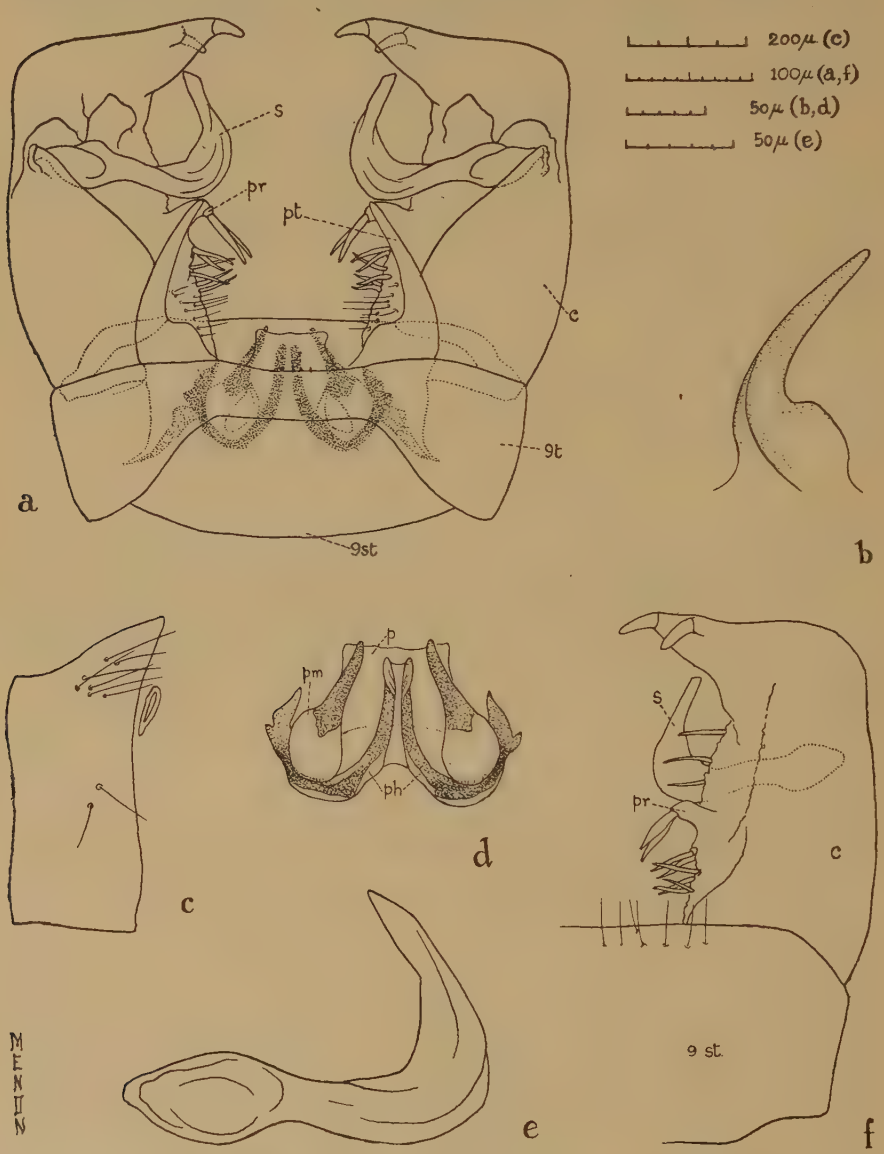


Fig. 1*a–f*.—*Aëdes* (*A.*) *seculatus*: (*a*) Male hypopygium (true dorsal aspect); (*b*) paraproct; (*c*) mesepemeral sclerite of the left side, showing upper and lower groups of hairs; (*d*) phallosome and associated structures (true ventral aspect); (*e*) style; (*f*) coxite (true ventral aspect).

c. coxite, *p*, quadrilateral plate on dorsal side of phallosome, *ph*, phallosome, *pm*, parameral plates, *pr*, stumpy process on inner side of coxite, with a pair of strong spines; *pt*, paraproct; 9 *st*., ninth sternite; 9 *t*, ninth tergite.

group characterized by Barraud (1934) in his key, as having paraprocts, simple (undivided) long and pointed. *Aëdes* (*A.*) *seculatus* may be distinguished from its allies by means of the following synoptic table which is mainly drawn from Barraud (*loc. cit.*).

Key to the identification of species of the Sub-genus *Aëdes* which have simple, long and pointed paraprocts.

1. A group of 4 or more spines at ventral root of coxite; tip of latter drawn out into several horn-like processes . . . . . 2.
   No spines at ventral root of coxite; tip of latter with not more than a single process . . . . . 3.
2. Style comparatively long and sinuous with two small subterminal hairs *andamanensis* Edwards.
   Style comparatively short and wide, with a long hair at about middle *vallistris* Barraud.
3. Coxite without process on inner side, but with large tergal lobe . . *yerburyi* Edwards.
   Coxite with one or two processes on inner side, but no tergal lobe . . 4.
4. Two straight processes (apart from style) arising from inner side of coxite. Apex of coxite terminating in a single finger-like process . *rami* Barraud.
   A single process arising from inner side of coxite. Apex of coxite not ending in a finger-like process . . . . . 5.
5. Apex of coxite, wide and truncate. Process on inner side, long, slender and elbowed. Style slender and curved with small pointed terminal appendage . . . . . *indicus* Theobald.
   Apex of coxite produced into a snout-like process carrying two stout spines. Inner process of coxite stumpy, bearing a pair of strong spines. Style large and sickle-like with no terminal appendage. . *seculatus* sp. n.

Reference.

Barraud, P. J., 1934, *Fauna of British India*, Diptera **5**, Culicidae: 277–299.

NEW SPECIES OF COLEOPTERA FROM THE MASCARENE ISLANDS.

By J. Vinson, F.R.E.S.
(*Curator, Mauritius Institute.*)

In 1946–47 I had the opportunity of studying at the British Museum (Natural History) and at the Muséum national d'Histoire naturelle in Paris some unnamed Coleoptera collected in Mauritius and Réunion. Among others, the following species appear to be new to science, and the types will be deposited in the collection of the British Museum (Nat. Hist.). If available, paratypes will be placed in the Paris Museum and in the Mauritius Institute.

Endomychidae.

Anagaricophilus concinnus sp. n.

Length: 1·46 mm.; max. width 1·15 mm.

Black, oval, very convex, with two yellowish patches on each elytron and bearing a fine semi-erect light brown pubescence. Mouth parts, legs and base of antennae reddish-yellow.

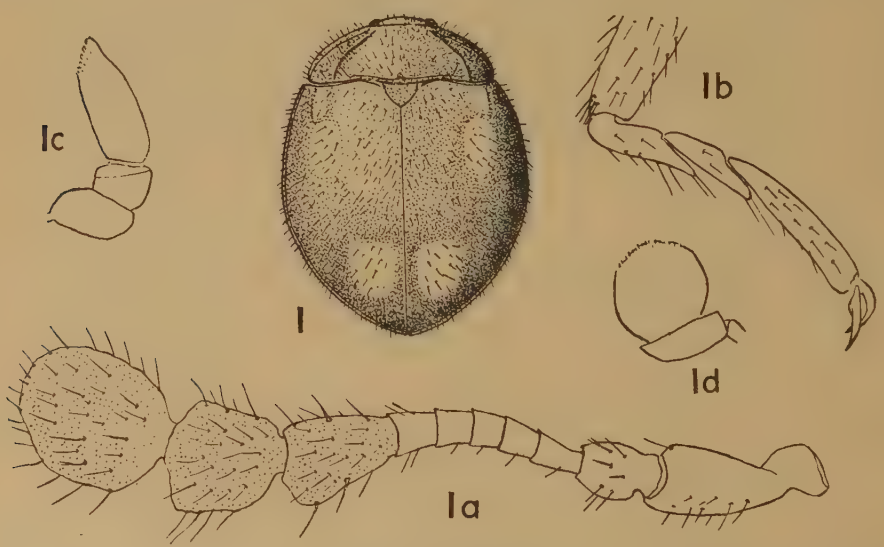


Fig. 1.—*Anagaricophilus concinnus* sp. n. 1*a*, antenna; 1*b*, hind tarsus; 1*c*, maxillary palp; 1*d*, labial palp.

Head black, smooth. Antennae 10-segmented, segment III a little longer than IV, V, VI which are sub-equal, VII sub-equal to III, last three segments largest, forming a club. Maxillary palpi with last segment elongate; labial palpi larger than maxillary, with last segment globose.

Pronotum with hind angles distinctly rounded, finely punctate, bearing two longitudinal ridges on each side, one close to lateral margin, but distinct from it (in fact it is probably the lateral border of the pronotum), second more remote from the side, starting opposite to the elytral callus and nearly reaching apex of pronotum ; base finely bordered, this border projected forward in a minute point in front of the scutellum.

Elytra five times as long as pronotum, with first yellow patch almost circular, placed just below callus, but not reaching base of elytron and quite remote from suture, second patch slightly larger than first, roughly circular in shape, placed on posterior declivity near suture, but not touching it ; finely margined and fairly strongly punctate, the punctures placed one to two diameters apart.

Legs with 3-segmented tarsi, 1st segment a little longer than second, and together sub-equal to third ; claws with a tooth-like projection at base ; trochanters bearing several pores grouped near the basal region. *Hind wings* fully developed.

Underside black, smooth ; epipleura fairly wide, concave ; six visible ventral segments.

MAURITIUS : Les Mares, 15.i.1938, 1 ex., under loose bark of a decaying tree ; Curepipe, ix.1944, numerous ex. in a dried inflorescence of a banana plant (*J. Vinson*).

Near *Anagaricophilus pulchellus* Arrow, of the Seychelles Islands, but quite distinct by the elytral pattern, the first anterior yellowish patch being more restricted, more rounded and not extended to base and suture as in *pulchellus*. The pronotal ridges are slightly more elevated and the punctuation of the elytra deeper than in *pulchellus*. In addition, the tarsi in *pulchellus* are described as being 4-segmented and the antennae 9-segmented. It is not, therefore, without hesitation that I am placing this new species in the genus *Anagaricophilus*, but I believe that in the ENDOMYCHIDAE these characters are subject to variation within the same genus.

ELATERIDAE.

Megapenthes fleutiauxi sp. n.

Length 7·8 to 9·3 mm. ; max. width 2·0 to 2·6 mm.

♂. Elongate, uniformly brownish-black, moderately shiny, with a flavescent recumbent pubescence.

Head fairly strongly punctate, punctures less than one diameter apart, slightly sparser on basal region. Antennae yellowish-brown, reaching basal eighth of elytra, segment III nearly 1½ times length of II and two thirds of IV, relative length of segments I to XI as follows : 24, 14, 20, 30, 29, 28, 27, 27, 26, 25, 28.

Pronotum as long as broad (posterior angles included), rather convex, punctation not very deep, from one to two diameters apart, posterior angles very feebly diverging, bi-carinate but outer carina rather obsolete and nearly confused with external margin.

Elytra as wide as pronotum along their basal third, then gradually narrowed, apex subtruncate, briefly mucronate at sutural angle.

Legs yellowish-brown, fifth segment of posterior tarsi twice length of fourth.

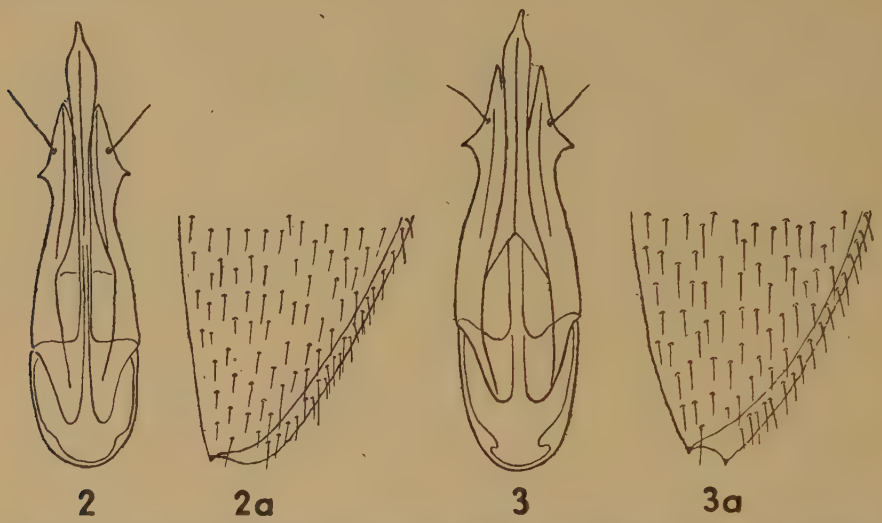
Aedeagus, as figured.

♀. Similar to male, but antennae shorter, just reaching hind angles of pronotum.

MAURITIUS : Mt. Cocotte, on flowers of the shrub *Ochna mauritiana*, 27.xii.1941, 13 ex. (*R. Mamet* and *J. Vinson*).

Eight species of *Megapenthes* are already known from Mauritius. Of these the nearest relative to *M. fleutiauxi* is *M. lucius* (Candèze) which is differently coloured, being reddish-yellow, its average size is larger, the apex of each elytron is bi-mucronate, and the fifth segment of the posterior tarsi is less than

twice the length of the fourth. The aedeagus of the two species is built on the same pattern, but the lateral lobes are proportionately longer in *M. fleutiauxi*.



Figs. 2–3.—2, *Megapenthes fleutiauxi* sp. n., aedeagus ; 2*a*, apex of elytron ; 3, *Megapenthes lucius* (Cand.), aedeagus ; 3*a*, apex of elytron.

This new species is named in honour of M. Edmond Fleutiaux in recognition of his valuable work on the Elateridae of the Mascarenes during the past fifty years.

Tenebrionidae.

Cherostus fungivorus sp. n.

Length 3·4 to 3·9 mm. ; max. width 1·7 to 1·9 mm.

♂. Subcylindrical, moderately elongate, twice as long as broad, colour opaque reddish-brown.

Head densely punctate by a reticulate, shallow punctation except the clypeus and the middle of the frons which are smooth and shining. Antennae 11-segmented, second segment half length of first, third and fourth very short, of equal length, together subequal to second, basal segments 1 to 5 together shorter than club which is formed by segments 6 to 11.

Pronotum densely punctate throughout with a reticulate shallow punctation as on head.

Elytra bearing each nine longitudinal costae and a short incomplete one in the humeral region. These longitudinal costae are linked by short transverse ridges forming a ladder-like pattern with the costae.

Underside strongly punctate with shallow punctures, except metasternum, which is partly smooth.

Legs with all tarsi 4-segmented, first three segments together subequal to fourth, tibiae serrate externally, middle and hind pairs armed externally with a fairly long spine at apex.

Hind wings fully developed.

♀. Similar to male, but apex of all tibiae bearing only five or six short spines or teeth; clypeus and middle of frons less smooth.

MAURITIUS: Moka, 6.i.1948, several examples found breeding in fungi; other examples were previously collected in the same material.

Of the same build and size as *Cherostus walkeri* Waterhouse, from Damma Island (East Indies), in which, however, the vertex of the head is concave and

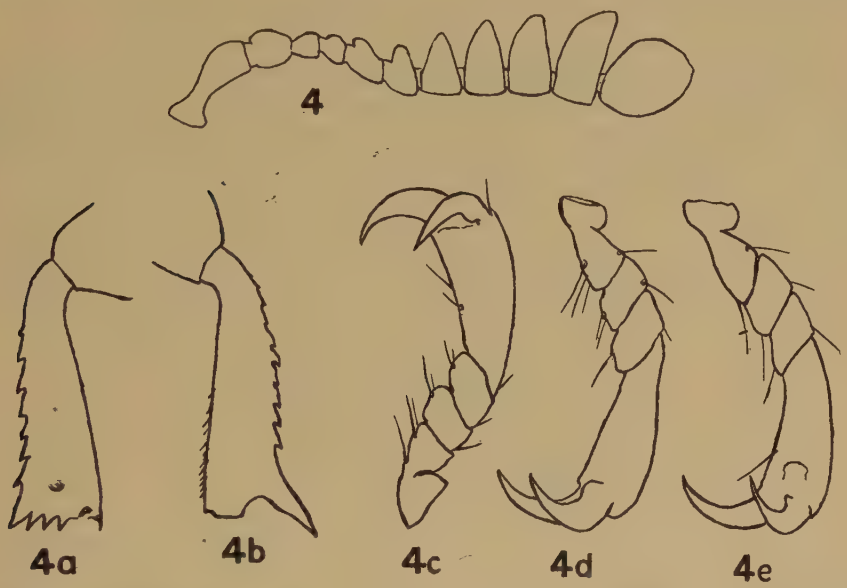


FIG. 4.—*Cherostus fungivorus* sp. n., antenna of male; 4*a*, hind tibia of female; 4*b*, hind tibia of male; 4*c*, 4*d*, 4*e*, front, middle and hind tarsi of male.

hairy, as well as the frons. *Cherostus speculifrons* Gebien, from the Seychelles, is much smaller in size, lighter in colour, less opaque and with a quite different antennal structure, the basal segments 1–5 together being much longer than the club (1922, *Trans. Linn. Soc. Lond.* **18**: 288, fig. 11).

Cherostus, with its tetramerous tarsi is an aberrant genus linking the TENEBRIONIDAE to the CIIDAE. It is sometimes classified in the latter, as for instance in the collection of the British Museum. Although not probably a deciding character it is worth recording that when alive the adults of *Cherostus fungivorus* emit the smell which is peculiar to so many, if not all, Tenebrionids.

Corticeus insularis sp. n.

Length 2·5 mm.; max. width 0·8 mm.

Black, shining, with a broad yellowish red patch on each elytron; moderately elongate, a little more than three times as long as broad.

Head black, fairly strongly punctate and microsculptured by iso-diametric meshes; two slight tubercles on the frons; antennae club-shaped, segments 5–11 being dilated, black with the basal segments reddish.

Pronotum uniformly black, rather densely punctate, microsculptured as head, sides and base finely bordered, anterior angles rounded, posterior ones sharp, obtuse; sides parallel, constricted a short distance before base, as long as broad.

Elytra black, with a broad, elongate yellowish-red patch on each side starting from the shoulder and nearly reaching apical fourth, leaving margin of elytron black; punctation not deep, nearly seriate, from two to four diameters apart.

Underside black. *Legs* reddish-brown.

Mauritius: Stanley, 27.xi.1932, 1 ex. (*R. Mamet*); Rose Hill, xi.1934, 1 ex.; Moka, xi.1947, 2 ex. (*J. Vinson*).

Lives under bark, probably as a predator of some wood boring beetle.

Near *Corticeus dorsalis* (Blair) from India, but somewhat larger, and having the elytral pattern different, the pale markings being more reduced and yellowish red instead of testaceous. The new species differs also in the dark parts of the body being blacker, and in the bi-tuberculate frons and smooth clypeus; in *dorsalis* the frons bears only one central tubercle or longitudinal carina, and there is also one on the clypeus. Quite distinct from the other species occurring in Mauritius, *C. ephippiatus* Gebien (= *Hypophloeus longicollis* Fairm.), which is larger and much more elongate.

Hypocalis madgei sp. n.

Length 8·8 mm.; max. width 4·1 mm.

♀. Bronzy green with antennae, legs and mouth parts light brown; underside reddish-brown.

Head with epistoma well defined, hexagonal at apex; eyes reniform, slightly divided by tubercle; punctation fairly strong, from one to two diameters apart. Maxillary and labial palpi with last segment securiform. Antennae fairly long, reaching basal seventh of elytra, segment I comparatively short, notched at level of head margin, subequal to segments IV to X, segment II shortest, about half length of I, III elongate, approximately 1½ times length of I and subequal to XI, which is ovate.

Pronotum transverse, twice as broad as long, greatest width a little before basal half; rather feebly convex, anterior angles produced, posterior angles well marked, obtuse; lateral sides bordered by a fine ridge continued for some distance along the apical and basal margins, but interrupted before the median part of these; punctation as on head, from one to two diameters apart, a smooth impunctate fossa on each side near margin at the widest part, another smaller fossa on each side of the basal margin at about a quarter distance from the side; a small impunctate area near middle of base.

Scutellum cordate, rather sparsely punctate.

Elytra nearly five times as long as pronotum (ratio 4·7 : 1), gradually widened posteriorly, widest part at apical third; striate-punctate, punctures forming the scutellary striole, first and second striae fine and evenly arranged, those of third stria widely and irregularly set on basal third, more closely and evenly on the remainder, punctures more or less elongate, widely and irregularly set on other striae. Apical region of each elytron bearing a succession of three angular protuberances. Interstices sparsely and finely punctate.

Legs: Front and middle tarsi with first three segments subequal, fourth smaller, about two-thirds length of I, II or III, fifth nearly as long as II, III and IV combined. Hind tarsi with first segment a little longer than 1½ times length of second, third about half length of second, fourth a little longer than first.

♂ unknown.

Mauritius: Piton Grand Bassin, 19.x.1940, 1 ♀ holotype (*Dr. E. H. Madge*), collected on the ground under decaying leaves.

The most similar described species is *Hypocalis arcuata* Lap., also from Mauritius, which is, however, quite distinct, at least by its sub-cylindrical shape, parallel sides and violaceous colour. It is probable that a new genus should be erected to include this new species and the following one, but owing to the paucity of material available—only one example of each—it is difficult to reach a definite conclusion at this stage.

Hypocalis borbonica sp. n.

Size and build like *H. madgei* but differently coloured, being violaceous as *H. arcuata*, elytral striae more regularly punctate, apical region of elytra without protuberances, ridge at base of pronotum continuous instead of being interrupted at middle as in *H. madgei*.

Reunion (= Bourbon); 1 ex. in the collection of the British Museum (N.H.).

Summary.

The following new species of Coleoptera are described :

Endomychidae : *Anagaricophilus concinnus*—Mauritius.
Elateridae : *Megapenthes fleutiauxi*—Mauritius.
Tenebrionidae : *Cherostus fungivorus*—Mauritius.
Corticeus insularis—Mauritius.
Hypocalis madgei Mauritius.
Hypocalis borbonica—Réunion.

A NEW SPECIES OF *STETHORUS* WEISE FROM INDIA (COLEOPTERA: COCCINELLIDAE).

By A. P. Kapur, M.Sc., Ph.D., D.I.C., F.R.E.S.

(Zoological Survey of India.)

An account of 21 old-world species of the genus *Stethorus* Weise was given by me some time ago (1948, *Bull. ent. Res.* **39**: 297–320). More recently I have found material of an undescribed species of this genus in the suburbs of Calcutta. This species was successfully reared on mites in the laboratory, and as its larva and pupa are shortly to be described elsewhere along with those of some other Coccinellids, I take this opportunity of naming and describing the adults.

Stethorus indira sp. n.

Body shortly oval and moderately convex. Black, excepting the testaceous antennae, mouth-parts and legs; the latter sometimes having piceous femora. Dorsal surface with grey, moderately long, rather sparse and sub-erect pubescence. Head finely and sparsely

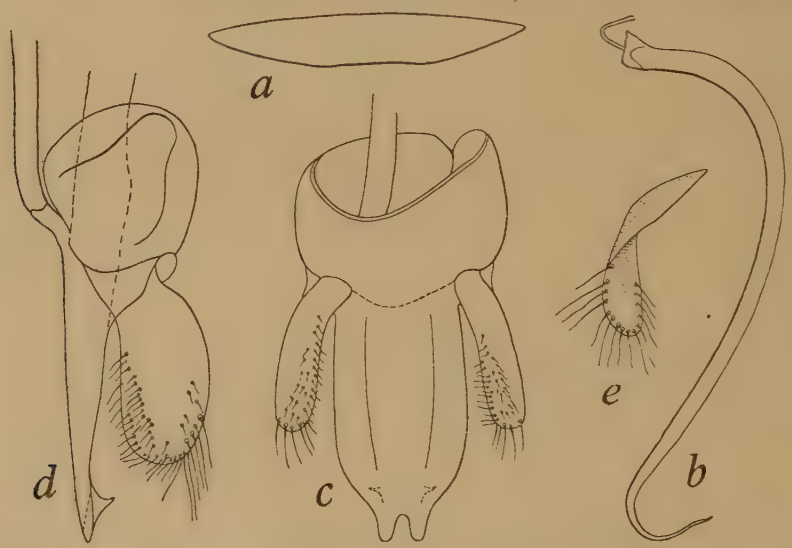


Fig. 1.—(*a*) Sixth abdominal sternite of the male (× 100); (*b*) sipho (× 100); (*c*) part of male genitalia as seen from the front (× 230); (*d*) the same as seen from the side (× 230); (*e*) half of the ninth sternite of female (× 230).

punctate; pronotum with the punctures fairly close and rather fine in the middle and coarse and navel-like towards the lateral margins; elytral punctures rather coarse and moderately impressed except near the apex and almost uniformly close. The surface between the punctures on the head and the middle of pronotum smooth, rather rugose elsewhere. Underside with greyish, short, sparse and subdepressed pubescence and with rather coarse but less impressed and fairly close punctation, except on the elytral epipleurae

and legs where the punctures are finer. Femoral lines semicircular, complete and extending as far as three-fourths of the length of the first abdominal sternite ; the last abdominal sternite rather straight at the apex (fig. 1*a*) in the male and rounded in the female. Male genitalia : sipho (fig. 1*b*) rather slender and gradually becoming thinner towards the apex, curved regularly in the basal one-third of its length, siphonal capsule short and dark ; trab fairly long, nearly two-and-a-half times the lengths of penis, moderately stout and dark ; basal plates blackish, large, nearly as long as wide ; penis (fig. 1*c*) oblong in front view, with the apical part slightly produced and notched in the middle ; on the dorsal side of the subapical region the penis is produced into a pair of small sub-conical projections ; paramera short, about two-thirds the length of penis, flattened and appearing ovate in side-view (fig. 1*d*) with many short hairs on the inner and a few long hairs on the apical regions. Female genitalia : Each half of the ninth sternite (fig. 1*e*) well sclerotized, spathulate, a little curved in the middle and with a number of distinct setae along the margin, the tenth tergite broadly oval, sclerotized chiefly in the distal part and with the apical margin sparsely lined with very short setae.

Length : 1·1–1·3 mm. ; width 0·78–0·9 mm.

Holotype.—A male, in the Indian Museum, Calcutta (Zoological Survey of India, Reg. No. 7887/H4). India : Calcutta, predaceous on red spiders on Arum (*Colocasia antiqourum* Schott (Aroideae), 9.iv.1950 (*A. P. Kapur*).

Allotype.—A female in the Indian Museum (Zoological Survey of India, Reg. No. 7888/H4) with the same data as the holotype.

Paratypes.—18, of both sexes, some with the same data as the type, others collected from the same environs on 18.iv.1950 (*A. P. Kapur*) ; in the Indian Museum, Calcutta, Forest Research Institute, Dehra Dun, British Museum (Natural History), London, and U.S. National Museum, Washington, D.C.

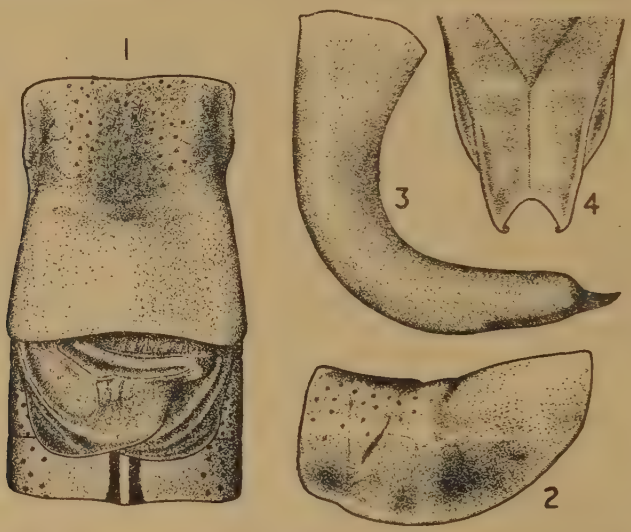
Remarks : This species seems to resemble *Stethorus pauperculus* Weise in most of the external characters and in the general outline of the male genitalia, but in structural detail the two species are very distinct. It is readily distinguished from *pauperculus* by the coarser punctation on the metasternum and the rather truncate apex of the last abdominal sternite in the male. The slender sipho, broader and apically notched penis and the ovate paramera of the male genitalia are some of the distinctive features which help to distinguish it from any other known species of the genus. Similarly, in the female, the ninth sternite is also very characteristic in outline, and in being lined with long setae.

FIVE NEW SPECIES OF *POECILIMON* FISCHER (ORTHOPTERA: TETTIGONIIDAE) FROM TURKEY.

By Dr. T. Karabag, F.R.E.S.

Poecilimon birandi sp. n. (figs. 1–4).

♂ (*type*). Of medium size. General coloration probably green, but specimens discoloured. Head, prozona of pronotum, sides of abdomen and legs with dark punctuation. Abdomen with two parallel longitudinal dark stripes near middle line (fig. 1). Fastigium of vertex narrower than first antennal segment, with an indistinct furrow. Pronotum (fig. 1) relatively long; its metazona somewhat convex (fig. 2). Elytra not extending to middle of second tergite (fig. 1).



Figs. 1–4.—*Poecilimon birandi* sp. n., ♂: 1, Pronotum, elytra, first and second tergites; 2, pronotum in profile; 3, left cercus; 4, subgenital plate.

Cercus (fig. 3) comparatively long and thick, cylindrical, regularly curved in a half circle, with one strong black tooth at apex. Subgenital plate (fig. 4) relatively long, narrowed to apex, which has a parabolic excision.

Length of body: 15·6–17 (type); pronotum 4·9–5 (type); elytra 2·7–3 (type); hind femur 13·4–13·6 mm. (type).

Antalya Province: Tahtali dağ, 1500 m., 11.vii.1949, 2 ♂♂ (*K. Bilger*).

This new species is named in honour of Prof. Dr. Hikmet Birand, Turkish botanist and the Rector of the University of Ankara.

Poecilimon glandifer sp. n. (figs. 5–13).

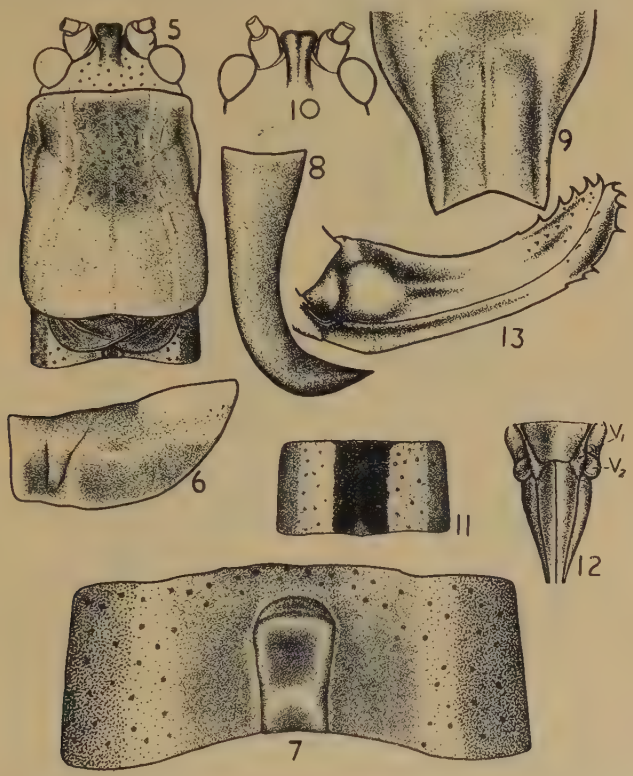
♂ (*type*). A small and elegant species. General coloration green; head light green but fastigium brown; metazona of pronotum reddish brown; head, anterior half of pronotum, abdomen, and legs with dark dots. Abdomen with two lateral light stripes,

on head and pronotum these stripes indistinct. Fastigium of vertex widened to apex, where it is about same width as first antennal segment; with an indistinct furrow (fig. 5).

Pronotum long, its metazona somewhat convex (fig. 6). Elytra short, not extending to the second tergite (fig. 5).

On middle of first tergite a long rectangular tubercle (fig. 7), red brown in colour, projecting beyond elytra (fig. 5) (Hancock's gland).

Cercus (fig. 8) cylindrical, bent inward in the last third, with one black tooth at apex. Subgenital plate (fig. 9) with a shallow obtusangular excision.



FIGS. 5–13.—*Poecilimon glandifer* sp. n.: 5, ♂, Head, pronotum, elytra and first tergite; 6, ♂, pronotum in profile; 7, ♂, first tergite with Hancock's gland; 8, ♂, left cercus; 9, ♂, subgenital plate; 10, ♀, head; 11, ♀, first tergite; 12, ♀, subgenital plate and basis of ovipositor, V_1 = first valvifer, V_2 = second valvifer; 13, ♀, ovipositor in profile.

♀. Colour as in ♂; fastigium of vertex broader than first antennal segment, with a furrow (fig. 10). Pronotum long, subcylindrical. First tergite with a broad black median stripe (fig. 11). Subgenital plate (fig. 12) small, trapezoidal, apex weakly concave. First valvifer small, weakly convex; second valvifer small, rounded. Ovipositor (fig. 13) longer than head and pronotum together.

Length of body: ♂ 13·4, ♀ 13·6; pronotum ♂ 4·2, ♀ 4·9; elytra ♂ 1; hind femur ♂ 12·2, ♀ 13; ovipositor ♀ 6·9 mm.

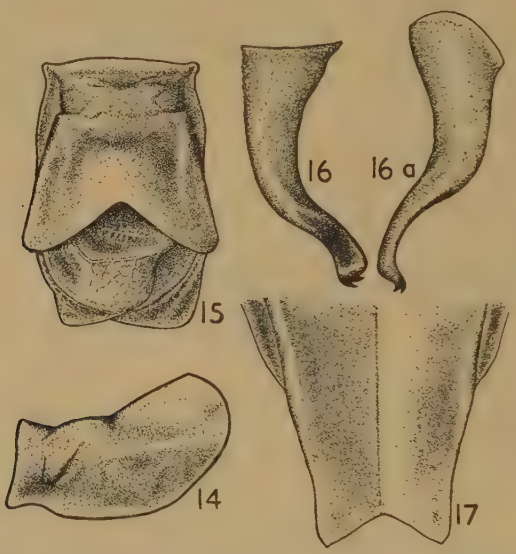
Ankara, 6.vi.1947, 2 ♂♂, 1 ♀ (*T. Karabag*).

The peculiar rectangular tubercle on the first tergite of the male abdomen is probably Hancock's alluring gland. Boldyrev (1915, *Horae Soc. ent. Ross.*

41 : 88) did not find this gland in *Poecilimon bosphoricus bidens* Ret., but it would be of interest to study this character in other species of *Poecilimon*, in which the gland may be hidden under the elytra.

Poecilimon excisus sp. n. (figs. 14–17).

♂ (*type*). A small species. General coloration probably green, but specimens discoloured. Fastigium of vertex much widened at base, narrowed to apex, and narrower than the first antennal joint, not sulcate above.



Figs. 14–17.—*Poecilimon excisus* sp. n., ♂ : 14, Pronotum in profile ; 15, pronotum and elytra ; 16, left cercus ; 16*a*, left cercus in profile ; 17, subgenital plate.

Metazona of pronotum very convex (fig. 14), and with a deep obtusangular excision behind (fig. 15). Elytra extend to middle of second tergite.

Cercus in basal part rounded, apical third flattened and S-shaped, with two black teeth at apex (figs. 16, 16*a*). Subgenital plate (fig. 17) relatively long with a shallow obtusangular excision.

Length of body : 10·5–11·8 (type) ; pronotum (along median line) 3·1–3·2 (type), (laterally) 3·9–4 (type) ; elytra 2·2–2·4 mm. (type).

Ankara Province : Elma dağı, 1750 m., 11.vii.1941, 1 ♂ (type) ; Konya, 6.vi.1947, 1 ♂ (*T. Karabag*).

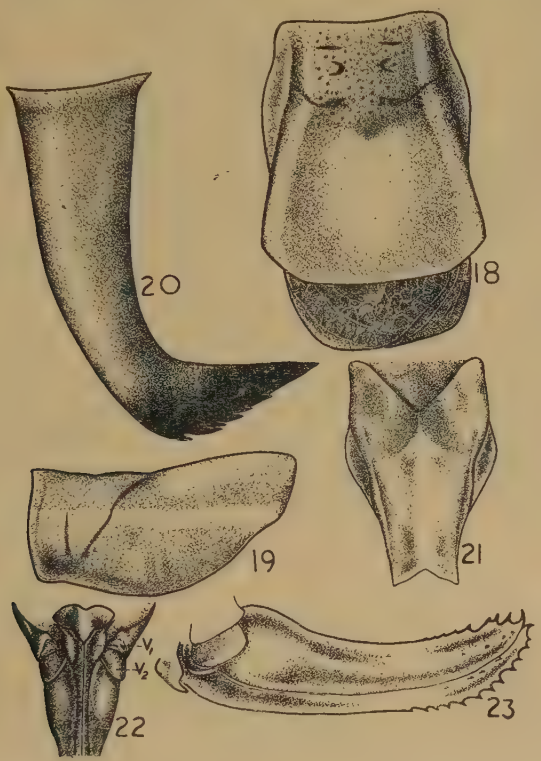
Poecilimon turcicus sp. n. (figs. 18–23).

♂ (*type*). Of medium size. General coloration green ; head light green, but fastigium and occiput brown ; upper surface of metazona of pronotum reddish brown, sides light brown. Occiput, anterior third of the pronotum, abdomen and legs with dark dots of variable size ; two black spots on occiput.

Head small ; fastigium of vertex about half width of first antennal segment, with a furrow. Pronotum (fig. 18) relatively long, its metazona slightly convex (fig. 19). Elytra extend to second tergite, yellow, but basal and middle parts brown.

Cercus (fig. 20) cylindrical, bent inward and flattened in apical fourth, posterior edge of apical part with 6 small teeth and a large apical tooth. Subgenital plate (fig. 21) relatively long, narrowed to apex, which has a shallow obtusangular excision.

♀. Colour as in ♂, but some specimens have light brown and black markings on tergites. Head larger than in ♂. Fastigium of vertex equal in width to half of first antennal segment. Pronotum longer than in ♂, sub-cylindrical.



Figs. 18–23.—*Poecilimon turcicus* sp. n.: 18, ♂, Pronotum and elytra; 19, ♂, pronotum in profile; 20, ♂, left cercus; 21, ♂, subgenital plate; 22, ♀, subgenital plate and basis of ovipositor, V_1 = first valvifer, V_2 = second valvifer; 23, ♀, ovipositor.

Subgenital plate (fig. 22) small, short, trilobate; first valvifer convex, elongate; second valvifer rounded-triangular. Ovipositor (fig. 23) shorter than head and pronotum together.

Length of the body: ♂ 22, ♀ 25; pronotum ♂ 5·6, ♀ 6·5; elytra ♂ 3; hind femur ♂ 15·4, ♀ 19; ovipositor ♀ 9·9 mm.

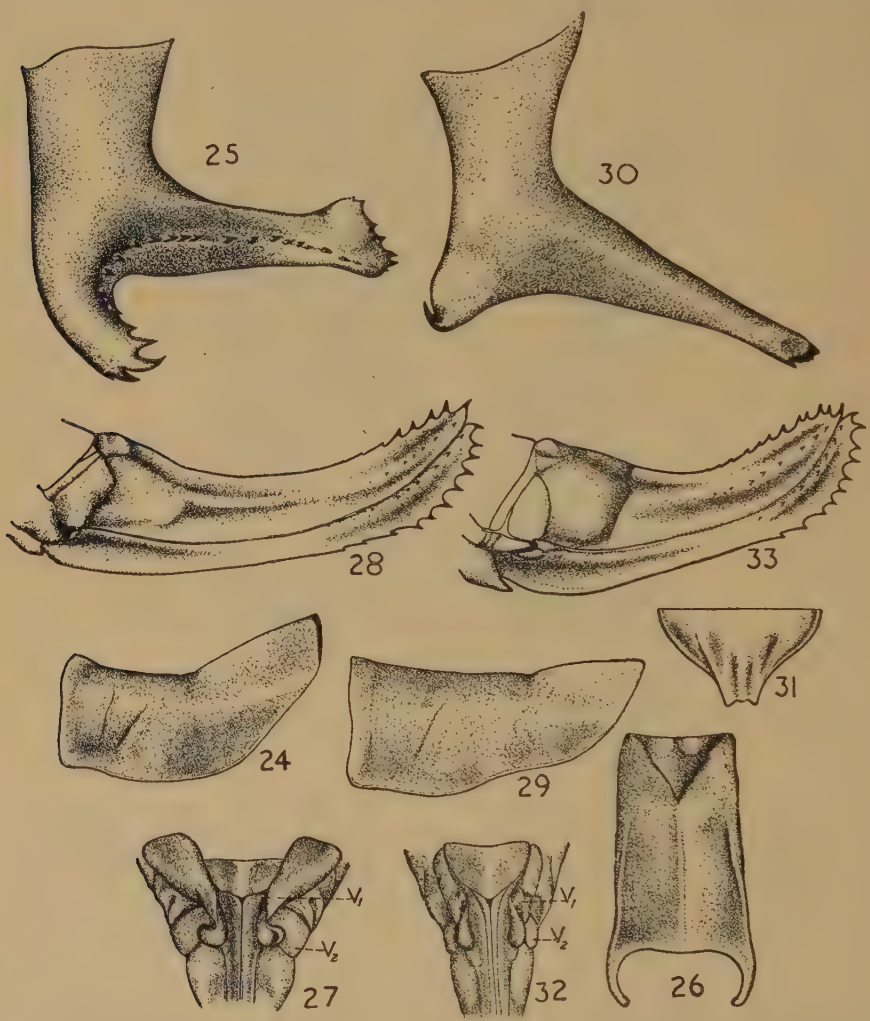
Bursa Province: Karačabey Harasi, 1, 12, 19.vi.1946, 3.vii.1946, 15 ♂♂, 16 ♀♀ (*T. Karabag*).

Poecilimon cervus sp. n. (figs. 24–28).

♂ (*type*). Of medium size. General coloration green; head light green; fastigium of vertex brown; upper side of metazona of pronotum reddish brown; occiput, anterior part of pronotum, abdomen and legs with black dots; two black spots on occiput; abdominal tergites with transverse broad bands. Fastigium of vertex narrower than first antennal segment. Pronotal metazona convex, its hind edge black (fig. 24). Elytra

yellow, basal and middle part dark brown, extend to second tergite. On outer surface of hind femur a long black stripe.

Cercus (fig. 25) very large, with two branches, inner branch long, broad, widened to apex, which is armed with 6 spines ; along its upper surface a row of black spinules which is



FIGS. 24–33.—*Poecilimon cervus* sp. n. : 24, ♂, Pronotum in profile ; 25, ♂, left cercus ; 26, ♂, subgenital plate ; 27, ♀, subgenital plate and basis of ovipositor, V_1 = first valvifer, V_2 = second valvifer ; 28, ♀, ovipositor.

P. hamatus Br. W : 29, ♂, pronotum in profile ; 30, ♂, left cercus ; 31, ♂, subgenital plate ; 32, ♀, subgenital plate and basis of ovipositor, V_1 = first valvifer, V_2 = second valvifer ; 33, ♀, ovipositor.

curved basally and continued with the row of large apical spines of apical branch of cercus ; the latter branch being much shorter than the inner one. Subgenital plate (fig. 26) longer than pronotum, elongate rectangular, slightly widened to apex, which has a broad and shallow excision, flanked by narrow curved lobes.

♀. Colour similar to ♂, upper surface of first tergite yellow, its sides green ; sides of abdomen with two large parallel light stripes ; no transverse band on tergites. Pronotum subcylindrical. Subgenital plate (fig. 27) small, rounded-trapezoidal ; first valvifer very large, with apical part curved ; second valvifer large, subtransverse. Ovipositor (fig. 28) longer than head and pronotum together.

	P. cervus sp. n.		*P. hamatus* Br.	
	♂.	♀.	♂.	♀.
Length of body . . .	20	23·1	17	18
„ pronotum . . .	5	5·3	5·8	6·1
„ elytra . . .	2·1	—	1	—
„ hind femur . .	15	16·1	14·4	16·4
„ ovipositor . .	—	9·1	—	7·7 mm.

Kastamonu Province: Tosya, 12.vi.1949, 2 ♂♂ ; Ankara Province : Beypazari, 20.vi.1949, 1 ♂, 1 ♀ ; Nallihan, 28.vi.1949, 2 ♂♂ (type), 4 ♀♀ (*T. Karabag*).

This species is related to *P. hamatus* Br. W., but differs from it in the structure of the pronotum, male cercus and subgenital plate, female ovipositor, valvifers and subgenital plate, as can be seen by comparing figs. 24–28 with figs. 29–33 ; these are drawn from co-typic specimens of *P. hamatus* Br. W. in the British Museum collection, which are from Rhodos, here designated as the type locality.

The types of all new species are deposited in the British Museum (Natural History) ; paratypes are in the Zoological Institute, University of Ankara.

AËDES VEXANS FROM WIMBLEDON.

By P. F. Mattingly.

(*Department of Entomology, British Museum (Natural History).*)

A female *Aëdes* (*Aëdimorphus*) *vexans* Meigen was taken biting in the garden of a house in All Saints Road, Wimbledon, at about 9 p.m. on 26.vii.1950. This is the ninth British record. Marshall (1938) gives Hayling Island, Hants, vii.32; Tring, Herts, viii.31; Finchley, Mddx, ix.27; Shotover, Oxon, viii.18; Mildenhall, Suffolk, vii.1894; Arundel, Sussex, vii.33; and Dolgelly, Merioneth, vii.22. The British Museum has a specimen taken at Cambridge in vii.1912.

Although rare in Britain this is one of the most widespread of all mosquitoes, occurring practically throughout the Nearctic, Palaearctic and Oriental regions and on some of the Pacific islands. It is a very troublesome biter and is therefore unlikely to escape detection where it occurs. Larvae were found at Hayling Island, Arundel and Dolgelly. At Finchley early stages and adults were both very numerous, but the species never seems to have become established in this country.

Marshall suggests that the eggs may occasionally be introduced from the Continent. Natvig (1948) summarizes various papers bearing on this suggestion and on the alternative one of aerial dispersal. The eggs are known to survive in soil for up to 5 years or even, in small numbers, up to 7 years. Some form of stimulus appears to be required for hatching, and this is believed to be provided in nature by the reduction of dissolved oxygen in the water by accumulated living and dead organic matter. In this respect still, shallow water is more favourable than deep or fast-flowing water. Adults of both sexes are believed to be able to migrate for 10 miles with ease and have been recovered as much as 14 miles from the point of liberation. A few specimens have been taken from " treacled " screens on the wing of an aeroplane at 5000 ft., one of them being still alive when recovered.

Dr. H. Ellis, Medical Officer of Health for Wimbledon, has kindly presented the latest specimen to the British Museum.

References.

Marshall, J. F., 1938, *The British Mosquitoes.* London, Brit. Mus. (Nat. Hist.).

Natvig, L. R., 1948, Contributions to the knowledge of the Danish and Fenno-scandian mosquitoes. Culicini. *Norsk. ent. Tidsskr. Suppl.* I.

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